News release

Melting Greenland ice threatens global rise in sea level

7 April 2004

Predictions show that if Greenland's climate warms up by more than about 3 °C, the massive ice sheet that has covered it for millennia will disappear, raising sea levels around the world by around seven metres. Although it would take longer than 1,000 years for all the ice to melt, new research shows that there are likely to be enough greenhouse gases in the atmosphere to produce this warming by as early as the middle of the century. We would then be locked into a change in our climate that would inevitably and increasingly threaten coastal and small island communities across the planet, adding significantly to the rise in sea levels already expected to occur due to the expansion of a warming ocean and the melting of mountain glaciers.

Jonathan Gregory, Climate Scientist at the Met Office Hadley Centre and the University of Reading, comments, "As well as raising sea levels significantly, loss of the Greenland ice sheet, would greatly alter the climate of Greenland. Unlike the ice on the Arctic Ocean, much of which melts and re-forms each year, the Greenland ice sheet, if eliminated, might not regrow even if the global climate was returned to pre-industrial conditions."

Notes to editors

- The research was done in collaboration with Philippe Huybrechts, who is at the Alfred Wegener Institute (AWI) for Polar and Marine Research in Bremerhaven, Germany, and the Free University of Brussels, and Sarah Raper, who is also at AWI.
- The Met Office Hadley Centre for Climate Prediction and Research is the world-leading centre for climate change. Its research is funded by Defra and other UK Government departments.
- The programme does not consider in detail the wider implications of such changes, but it is clear that to avoid reaching the levels of greenhouse gases in the atmosphere which are projected by the IPCC, significant emission reductions would need to take place in the coming decades. Also the programme does not consider the stability of the ice sheets in Antarctica, which may also be affected by climate change.

More about climate change

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